

## CHECK DAMS

### Definition

Small dams constructed across a swale or drainage ditch. This reduces the velocity of concentrated flows, reducing erosion of the swale or ditch.

### Conditions Where Practice Applies

- ✓ Where temporary channels or permanent channels are not yet vegetated, channel lining is not feasible and, therefore, velocity checks are required.
- ✓ In small open channels which drain 10 acres (4 Ha) or less. Check dams may not be placed in streams--Other permits may also be necessary.

### Advantages

- ✓ Check dams not only prevent gully erosion from occurring before vegetation is established, but also cause a high proportion of the sediment load in runoff to settle out.
- ✓ In some cases, if carefully located and designed, these check dams can remain as permanent installations with very minor regrading, etc. They may be left as either spillways, in which case accumulated sediment would be graded and seeded, or as check dams to precipitate further sediment coming off that site.

### Disadvantages/Problems

- ✓ Because of their temporary nature, many of these measures are unsightly, and they should be removed or converted to permanent check dams before project completion.
- ✓ Removal may be a significant cost depending on the type of check dam installed.
- ✓ Temporary check dams are only suitable for a limited drainage area.

### Design Criteria

- ✓ Check dams can be constructed of rock, pea-gravel filled bags or logs. Provide a deep sump immediately upstream.
- ✓ The maximum spacing between the dams shall be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.

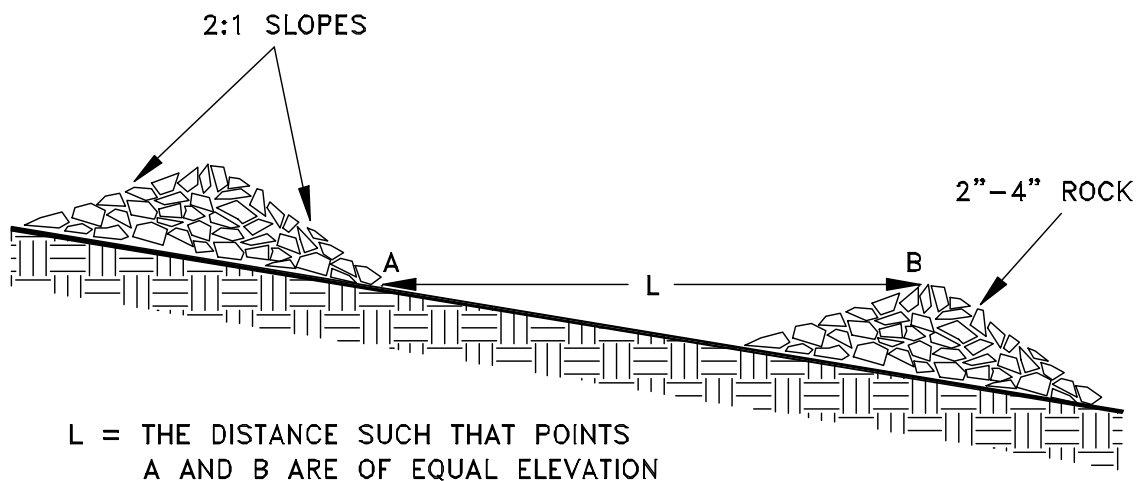


Figure 1 Check Dam Spacing

- ✓ Rock check dams shall be constructed of appropriately sized rock. The rock must be placed by hand or mechanical placement (no dumping of rock to form dam) to achieve complete coverage of the ditch or swale and to ensure that the center of the dam is lower than the edges. The rock used must be large enough to stay in place given the expected design flow through the channel.

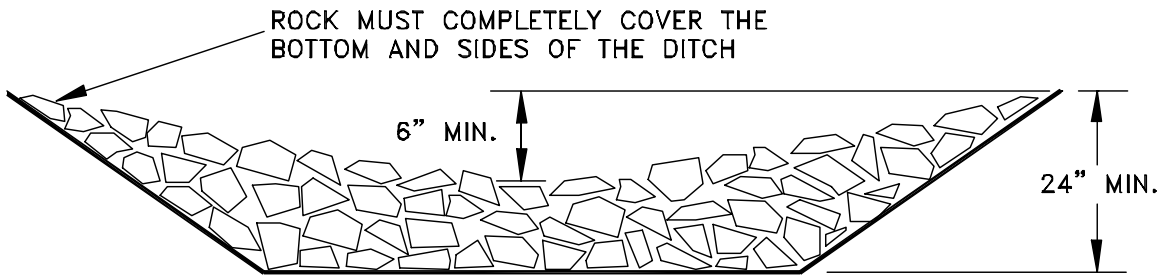


Figure 2 Check Dam Cross Section

- ✓ Log check dams shall be constructed of 4 to 6-inch (100 to 150 mm) diameter logs. The logs shall be embedded into the soil at least 18 inches (450 mm). In the case of grass-lined ditches and swales, check dams shall be removed when the grass has matured sufficiently to protect the ditch or swale unless the slope of the swale is greater than 4 percent. The area beneath the check dams shall be seeded and mulched immediately after dam removal.

#### Maintenance

- ✓ Check dams shall be periodically monitored for performance and after rainfall heavy enough to produce sediment accumulation. Sediment shall be removed when it reaches one half the sump depth. Trapped sediment shall be removed or stabilized on-site. Disturbed soil areas resulting from removal shall be permanently stabilized.